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DATE: Wednesday, August 25, 2004

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		<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L4	L3 and (pressure reducing device)	2
<input type="checkbox"/>	L3	L2 and removing	3348
<input type="checkbox"/>	L2	solvent residue\$	10443
<input type="checkbox"/>	L1	non-volatile solvent residue\$	5

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L1: Entry 5 of 5

File: DWPI

Dec 20, 1994

DERWENT-ACC-NO: 1995-035613  
DERWENT-WEEK: 200341  
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TITLE: Syringe injection system for measuring non-volatile solvent residue - using supply of ultra-pure deionised water caused to flow continuously toward non-volatile residue monitor.

INVENTOR: BLACKFORD, D B; ENSOR, D S ; HILL, E A ; KERRICK, T A

PRIORITY-DATA: 1992US-0878740 (May 5, 1992)

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## PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/>	<a href="#">US 5374396 A</a>	December 20, 1994		010	G01N015/12
<input type="checkbox"/>	<a href="#">JP 3280464 B2</a>	May 13, 2002		011	G01N015/06

INT-CL (IPC): G01N 15/06; G01N 15/10; G01N 15/12; G01N 15/14

ABSTRACTED-PUB-NO: US 5374396A

## BASIC-ABSTRACT:

The concentration of non-volatile residue in a test solvent is determined by generating multiple liquid droplets from a liquid stream including the solvent and ultrapure water. The droplets are dried to form a stream of multiple particles of the non-volatile residue. A supply of ultra pure deionised water is caused to flow continuously toward a non-volatile residue monitor, at a constant fluid flow rate. upstream of the residue monitor a syringe is provided for intermittently injecting a test solvent into the fluid stream. The solvent can be injected for several minutes at a constant flow rate substantially less than that of the ultrapure water.

A mixing valve, downstream of the point of solvent introduction causes turbulent flow to thoroughly mix the solvent and water. In an alternative approach, a syringe is used to instantaneously inject solvent in the form of bursts. In this case, flow is laminar rather than turbulent to maintain the solvent burst separate from the water, while it flows with the water in the fluid stream. In either case, the composite of liquid and solvent is provided to the residue monitor. The monitor output is a particle count. A microprocessor receives the particle count and converts the count to derive values for non-volatile residue concentration in the solvent.

USE - For determining non-volatile residues in solvents used in the fabrication of very large scale integrated circuits (VLSI).

ABSTRACTED-PUB-NO: US 5374396A  
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/12

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☐ 1. Document ID: US 20040089324 A1

L4: Entry 1 of 2

File: PGPB

May 13, 2004

PGPUB-DOCUMENT-NUMBER: 20040089324

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040089324 A1

TITLE: Method and system for removing particles and non-volatile residue from surfaces

PUBLICATION-DATE: May 13, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gray, Donald	Warwick	RI	US	
Frederick, Charlotte	Tempe	AZ	US	

US-CL-CURRENT: 134/21; 134/1, 134/1.3, 134/10, 134/26

ABSTRACT:

The invention is directed to a controlled environment processing chamber into which solvents, water and/or gases can be introduced for cleaning of an object. The process includes first applying a negative gauge pressure to the chamber to non-condensable gases and then introducing a solvent, solvent mixture, water or gas in either a liquid or vapor state to remove soluble contaminants from the surface of an object being processed in the chamber. Further steps recover residual solvent or solution from the object and chamber. A secondary cleaning step directs a vapor state fluid at high velocity at a solid surface of the object to remove insoluble material left behind after the pretreatment step. A final series of steps recovers any loose impediments or residual liquid or vapor from the chamber and returns the chamber to atmospheric pressure for removal of the cleaned object.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWNC	Draw D
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☐ 2. Document ID: US 20030226576 A1

L4: Entry 2 of 2

File: PGPB

Dec 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030226576

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030226576 A1

h e b b g e e f e e ef b e

TITLE: Method and system for removing particles and non-volatile residue from surfaces

PUBLICATION-DATE: December 11, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gray, Donald	Warwick	RI	US	
Frederick, Charlotte	Tempe	AZ	US	

US-CL-CURRENT: 134/1; 134/10, 134/26, 134/3, 134/30, 134/34

## ABSTRACT:

The invention is directed to a controlled environment processing chamber into which solvents, water and/or gases can be introduced for cleaning of an object. The process includes first applying a negative gauge pressure to the chamber to non-condensable gases and then introducing a solvent, solvent mixture, water or gas in either a liquid or vapor state to remove soluble contaminants from the surface of an object being processed in the chamber. Further steps recover residual solvent or solution from the object and chamber. A secondary cleaning step directs a vapor state fluid at high velocity at a solid surface of the object to remove insoluble material left behind after the pretreatment step. A final series of steps recovers any loose impediments or residual liquid or vapor from the chamber and returns the chamber to atmospheric pressure for removal of the cleaned object.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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Term	Documents
PRESSURE	4081690
PRESSURES	516069
REDUCING	1841176
REDUCINGS	14
DEVICE	8034638
DEVICES	2518505
(3 AND ((PRESSURE ADJ REDUCING) ADJ DEVICE)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2
(L3 AND (PRESSURE REDUCING DEVICE) ).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD.	2

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